

ABSTRACT OF THE DISCLOSURE

A system and method for inductive heating, in which a power source provides current pulses with high-frequency harmonics to a heater coil, the coil generating a magnetic flux for inductive heating of an article. The high-frequency harmonics enhance a relative proportion of inductive heating, compared to resistive heating of the heater coil. Providing these high-frequency harmonics, occurring above the border frequency of the heating system, enables the system to deliver an increased proportion of inductive heating, compared to resistive heating, without requiring an increase in the Root Means Square (RMS) current in the coil. Providing better coupling between the coil and the core, such as by embedding the coil wholly or at least partially in the core, and providing a magnetic yoke to close the loop with the core, can provide a significantly decreased border frequency. This reduction of the border frequency then can be utilized to provide larger amounts of energy in the high-frequency harmonics of the current pulses, and thus provide a greater percentage of inductive heating without increasing the current in the coil. The current pulses preferably have steeply varying portions, such as a steeply varying leading edge and/or trailing edge.